To: Anurag Mishra[Anurag.Mishra@respec.com]
From: Shaikh, Taimur
Sent: Tue 2/13/2018 10:36:11 PM
Subject: RE: Scenario Thoughts ... a few questions for our call tomorrow

Sure.

Taimur A. Shaikh, Ph.D.
Assessment, Listing, and TMDL Section (6WQ-PT)
Water Division | EPA Region 6

From: Anurag Mishra [mailto:Anurag.Mishra@respec.com]
Sent: Tuesday, February 13, 2018 4:30 PM
To: Shaikh, Taimur <Shaikh.Taimur@epa.gov>
Subject: RE: Scenario Thoughts ... a few questions for our call tomorrow

You want to share your screen using join.me or webex?

ANURAG MISHRA
650.962.1864 office // 650.395.7224 cell

From: Shaikh, Taimur [mailto:Shaikh.Taimur@epa.gov]
Sent: Tuesday, February 13, 2018 2:20 PM
To: Anurag Mishra <Anurag.Mishra@respec.com>; Tony Donigian <Tony.Donigian@respec.com>; Paul, Sabu <SPaul@mbakerintl.com>
Subject: RE: Scenario Thoughts ... a few questions for our call tomorrow

Hi Anurag,

I have been trying to get it to work but so far, I've been unsuccessful.

Please let me know if you have any ideas.

Thanks.

Taim.

Taimur A. Shaikh, Ph.D.
Assessment, Listing, and TMDL Section (6WQ-PT)
Water Division | EPA Region 6

From: Anurag Mishra [mailto:Anurag.Mishra@respec.com]
Sent: Monday, February 12, 2018 6:47 PM
To: Tony Donigian <Tony.Donigian@respec.com>; Shaikh, Taimur <Shaikh.Taimur@epa.gov>; Paul, Sabu <SPaul@mbakerintl.com>
Subject: RE: Scenario Thoughts ... a few questions for our call tomorrow

Taim and Paul

The link to the latest HSPEXP+ is below. You can remove your existing installation and then install this version.

https://www.dropbox.com/s/319dp7sczlauaaz/HSPEXP%2B1.40beta7SetUp.exe?dl=0

1. I am attaching the IRW_Base.uci with this email. You will notice that it has different path names in files block and it refers to the WDM file as IRW_Base.wdm (HSPEXP+ expects same name as UCI file).
2. You will also notice that I have reduced the simulation time to only one year, decreased output levels and suppressed output (*.out) file generation. I did this to complete the simulations quickly.
3. I have also attached a MultiSimSpecFile.csv with this email. HSPEXP+ will look for this file during Multi Simulation in the same folder as the UCI file exists.
4. You can observed MultiSimSpecFile.csv and see that I have added multiple MASS-LINK that may be varied. We may add or remove some of these links. I have specified only two simulations where all these factors will be reduced by 50 and 60% respectively. We can try multiple combinations of these.
5. To use Muti-Simulation Manager, start HSPEXP+, browse to the IRW_base.UCI file, check the "Multi Simulation Manager box", and click on start.
6. You will notice that HSPEXP+ will produce a UCI file MultiSim.uci, that is a copy of the IRW_Base.uci (formatting may differ).
7. When the Mult Simulation Manager process will complete (may take 15-20 minutes), you will see two additional UCI files, MultSim1.uci, and MultSim2.uci. You can compare these UCI file with the MultSim.uci file to see if your expected changes did show up.
8. MultSimOutput.csv will include summary statistics of DSN identified in the specification file. Column G will contain the Max(30-day Geometric mean).
9. You will also see MultiSim_IRW_base.wdm in the same folder. This WDM file contains the copy of datasets identified in specification file, for each simulation. These time series can be used for any additional analysis that is not automatically available in MultSimOutput.csv

Let me know if you have any trouble running these two test scenarios.

Thanks
~A

ANURAG MISHRA
650.962.1864 office // 650.395.7224 cell

From: Anurag Mishra
Sent: Friday, February 09, 2018 2:42 PM
To: Tony Donigian <Tony.Donigian@respec.com>; Shaikh Taimur <Shaikh.Taimur@epa.gov>; Paul, Sabu <SPaul@mbakerintl.com>
Subject: RE: Scenario Thoughts ... a few questions for our call tomorrow

Dear All

Please find attached an excel file that includes the TP Load allocation table for all the reaches that drain to Lake Tenkiller and the Geometric Mean calculation for all of them as well.

Additionally, I have set up HSPEXP+ such that a specification file can be provided ahead of time that instructs HSPEXP+ to change model parameters, MASS-LINK Multipliers, point source multipliers, and point source datasets in the UCI file, run the UCI file for each set of change and provide an output file that includes multiple statistics of the datasets of interest (including 30-day Geometric mean). I have attached an example specification file and an example output file for datasets 6320 and 8690. We can talk about it on Monday while strategizing the scenarios.

Thanks

~A

ANURAG MISHRA
650.962.1864 office // 650.395.7224 cell

From: Tony Donigian

Sent: Wednesday, February 07, 2018 2:43 PM
To: Anurag Mishra <Anurag.Mishra@respec.com>; Shaikh Taimur <Shaikh.Taimur@epa.gov>; Paul, Sabu <SPaul@mbakerintl.com>
Subject: RE: Scenario Thoughts ... a few questions for our call tomorrow

Anurag –
Please also calculate the same stats at the outlet reach to Tenkiller, so we can see what the results look like there … in the same workbook, under another tab. Then send that out to everyone on this email thread.

Also, we need to see/review the load allocation tables, so please send those out also. I'd like to compare the load allocation tables to the ones we generated for the calibration.

I don't think you need to do any scenario runs until we discuss the specifics of your questions. Sabu … possibly you can set up a call for Tuesday or Wed, next week?

Tony

TONY DONIGIAN

650-962-1864 // 650-962-1868 D // 650-722-2669 C

From: Anurag Mishra
Sent: Wednesday, February 07, 2018 10:17 AM
To: Shaikh Taimur <Shaikh.Taimur@epa.gov>; Paul, Sabu <SPaul@mbakerintl.com>
Cc: Tony Donigian <Tony.Donigian@respec.com>
Subject: RE: Scenario Thoughts ... a few questions for our call tomorrow

Taim and Sabu

As I mentioned earlier, I ran the IRW_Base.uci file and the GeoMean of TP at Reach 630 was 0.067mg/l. Taim confirmed that my baseline values matches his.

I added NACA Point Source and ran the model again. The GeoMean increased by 0.47%. To achieve that standard of 0.37 mg/l, we have to reduce this concentration by about 44%.

I generated TP load allocation reports for this run at Reach 630, and about 75% of the load is coming from all the pasture lands, and 6% load is coming from all the point sources.

I have following questions/comments about the scenarios.

1. A general reduction from all sources (same reduction percentage)
   a. Does that mean x% reduction from all land uses and all point sources? Does that reduction apply only to P sources or other pollutants as well? That would mean multiplying all the relevant multiplication factors by 1-x in MASS-LINK block and EXT SOURCES block.

2. Setting permits to 0.1 mg/L and **commensurate reduction** in non-point
   a. Assuming that the number above applies only to TP, this means calculate TP load for all the PS (multiplying concentrations by water volume), divide calculated load as ortho P and organic P, and generate PS Time series.
   b. Calculate change in total PS load after setting the permit to 0.1 mg/l, apply the same change to all NPS (P) loads and run the scenario.

3. Leaving permits at current permitted levels and reducing NPS.
   a. I do not think I have information about the current permit levels for all the PS. Could you please provide me the permit levels for all the PS? We will regenerate PS load time series for all the sources with the permitted levels.
   b. With the permitted level PS, we will reduce the NPS load by reducing the multiplication factors in MASS-LINK blocks (for all pollutants or only P?)

Please feel free to give me a call at 650 395 7224, and we can discuss the scenarios in detail.

Thanks
~A

ANURAG MISHRA
650.962.1864 office // 650.395.7224 cell

From: Tony Donigian
Sent: Thursday, February 01, 2018 4:15 PM
To: Shaikh Taimur <Shaikh.Taimur@epa.gov>
Cc: Paul, Sabu <SPaul@mbakerintl.com>; Anurag Mishra <Anurag.Mishra@respec.com>; Brian Bicknell <Brian.Bicknell@respec.com>
Subject: RE: Scenario Thoughts ... a few questions for our call tomorrow

Taim/Sabu –

Here are a few questions we have re: scenario runs, for our call tomorrow:

1. We need to be clear on the Base run (run 1992-2009), make whatever changes are needed, process the output … so our results are the 'same', or consistent with, those generated by Taim … they won't be the same since we need to add in NACA .. AND we want to be sure we are processing the results in the exact same fashion as Taim has done for the Principals/State reps.
    a. So, Taim, please resend the spreadsheet you use to process the output and generate the GeoMean values for TP, at the Stateline and TenKiller.
2. We (RESPEC) needs to process the NACA 2015 point source data consistent with the current Base run.
3. Taim – You were going to check into how the 2011 NLCD data were processed and added in to the Base run
4. Taim – You sent the following bullets for scenarios to be run:

- A general reduction from all sources (same reduction percentage)
    - We will generate the Load allocation tables for the Base Run, as a basis to determine what '% Reduction' this should be. Probably will need a call or at least emails to settle on the reduction %.
- Setting permits to 0.1 mg/L and **commensurate reduction** in non-point
    - How do we determine this reduction? … maybe generate the load tables again and base it on what that shows.
- Leaving permits at current permitted levels and reducing NPS.
    - We need to be clear on how we represent this … will need some discussion, both on the permit levels, and what NPS reduction we want to use.

That's all for now … I'm sure others will come up as we delve into the details.
Talk to you all tomorrow

Tony
p.s. Sabu - I didn't copy DSLLC Chris and Silong …. So please forward if they are to be on the call.
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TONY DONIGIAN

650-962-1864 // 650-962-1868 D // 650-722-2669 C

From: Shaikh, Taimur [mailto:Shaikh.Taimur@epa.gov]
Sent: Tuesday, December 19, 2017 9:53 AM
To: Tony Donigian <Tony.Donigian@respec.com>
Cc: Paul, Sabu <SPaul@mbakerintl.com>; Anurag Mishra <Anurag.Mishra@respec.com>; Brian Bicknell <Brian.Bicknell@respec.com>
Subject: RE: Scenario Thoughts

Hi Tony,
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I have inserted my comments/responses below. Tony, feel free to give me a call this week.

Thanks.

Taim.

Taimur A. Shaikh, Ph.D.
Acting Section Chief | NPDES Management Section (6WQ-PO)
Home Section | Assessment, Listing, and TMDL Section (6WQ-PT)
Water Division | EPA Region 6

From: Tony Donigian [mailto:Tony.Donigian@respec.com]
Sent: Monday, December 18, 2017 6:04 PM
To: Shaikh, Taimur <Shaikh.Taimur@epa.gov>
Cc: Paul, Sabu <SPaul@mbakerintl.com>; Anurag Mishra <Anurag.Mishra@respec.com>; Brian Bicknell <Brian.Bicknell@respec.com>
Subject: RE: Scenario Thoughts

Taim –
Brian came into the office and helped us come up to speed on our latest IRW model runs. I asked him to review the Base run, so that we can all be clear as to what the Base represents … then we can discuss what we want to change for the various scenarios you listed below.

Here is Brian's analysis of the Base run UCI:
The Base run has the following changes from the calibration run:

- The model time span is 1992-2009; the calibration span is 2001-2009
- The Base run point sources are monthly values from 2015 that are applied to each year of the run; we processed data that Taim sent on **7/18/16**. The comment at the top of the UCI file about using 2009 data is incorrect. Also, **neither run has NACA point source**; this might be an error in the Base run. **This needs to be resolved before we finalize the Base run.**
  - TAS – Let's get NACA in there.
- The land use is changed to NLCD 2011 (based solely on the comment in the UCI; I didn't research this further). This is a complex change because of the different pasture types! **Taim, we believe you made these changes for the 2011 land use, possibly based on some scenario runs we did earlier … do you recall how you changed the land use to 2011?**
  - TAS - I apologize folks. I do not recall the exact methodology. I do recall that Brian and I worked on it together. I'll go through my emails and see what I have there…we did that around June or July of 2016.

- Both runs have the artificial baseflow added to RCHs 150, 304, 308.
- Expert System/hydrology output (COPYs) has been removed from Base run.
- Litter application rates in Base run are set to 2009 values for all years.
- Both runs have the updated monthly distribution for litter and the updated 10% surface and 90% upper layer for litter applications.
- Both runs have Taim's updated RCHRES denitrification rates.
- Both runs have same N fertilizer added to non-litter pasture.
- Both runs have same parameter values

Taim, we need to resolve the 2 questions in **RED** above, and confirm all the other changes are consistent with your discussions with the State folks.

Let me know if you want to discuss this, this week. Anurag and I are in this week, but our office is effectively close most of next

week. But let me know if you want to discuss next week, as we will likely be in some times on Thursday and/or Friday. Otherwise, we'll plan to touch base on this after the New Year.

MERRY CHRISTMAS!!

Tony

TONY DONIGIAN

650-962-1864 // 650-962-1868 D // 650-722-2669 C

From: Shaikh, Taimur [mailto:Shaikh.Taimur@epa.gov]
Sent: Friday, December 08, 2017 9:25 AM
To: Tony Donigian <Tony.Donigian@respec.com>
Cc: Paul, Sabu <SPaul@mbakerintl.com>
Subject: Scenario Thoughts

Here are a few thoughts

- A general reduction from all sources (same reduction percentage)
- Setting permits to 0.1 mg/L and commensurate reduction in non-point
- Leaving permits at current permitted levels and reducing NPS.

Please let me know what you think.

Thanks.
Taim.

Taimur A. Shaikh, Ph.D.

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